Contributed poster
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Title: A review of Ruffe (Gymnocephalus cernuus) life history and implications for spread

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Abstract: Ruffe (Gymnocephalus cernuus) are among the most widespread fish invaders in Lake Superior. The objective of this study was to gather information on the complete life cycle of Ruffe in both their native and non-native ranges to characterize their life history strategies. A study on their complete life cycle can facilitate the study of their movement patterns necessary to characterize its ecological niche, and can aid the development of early detection strategies. To accomplish this objective, we completed a literature review on the Ruffe life cycle in both their native and non-native ranges. We found that Ruffe have complex life histories (i.e., habitats utilized at different life-stages) that are both variable and adaptable. Generally, Ruffe occupy benthic habitat and can tolerate a wide range of salinities, depths, and water qualities; however eggs may be sensitive to hypoxia. Throughout each life stage and season, Ruffe undertake movements at multiple temporal and spatial scales. When eggs hatch, larvae are pelagic; after 1-2 weeks, they become primarily demersal, feeding in the benthos. In the winter, juvenile and adult Ruffe move offshore in some systems and may return to their natal habitats to spawn in the spring. Despite its apparently broad niche, Ruffe have had relatively slow rates of spread compared to the Round Goby. Movements at different life stages (especially as larvae and adults) need to be further examined to predict spread throughout the Great Lakes.